

# Laucks®

Testing Laboratories, Inc.

940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063

## Certificate

Chemistry Microbiology and Technical Services

CLIENT: Alaskan Copper Works  
P.O. Box 3546  
Seattle, WA 98124  
ATTN: Jim Brown

LABORATORY NO. 14378

DATE: Feb. 14, 1989

PO# M8625

REPORT ON: WATER

### SAMPLE

IDENTIFICATION: Submitted 02/02/89 and identified as shown below:

- 1) 1-3-3200-M8625
- 2) 1-5-3200-M8625
- 3) 1-10-3200-M8625
- 4) 1-12-3200-M8625
- 5) 1-17-3200-M8625
- 6) 1-19-3200-M8625
- 7) 1-24-3200-M8625
- 8) 1-26-3200-M8625
- 9) 1-31-3200-M8625

### TESTS PERFORMED AND RESULTS:

parts per million (mg/L)

|          | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
|----------|----------|----------|----------|----------|----------|
| Chromium | 0.70     | 0.76     | 0.64     | 0.40     | 0.82     |
| Copper   | 0.30     | 0.35     | 0.25     | 0.16     | 0.56     |
| Nickel   | 0.64     | 0.56     | 0.58     | 0.29     | 0.73     |
| Zinc     | 0.072    | 0.054    | 0.032    | 0.048    | 0.054    |

|          | <u>6</u> | <u>7</u> | <u>8</u> | <u>9</u> | <u>Method<br/>Blank</u> |
|----------|----------|----------|----------|----------|-------------------------|
| Chromium | 0.90     | 2.0      | 1.1      | 1.3      | <0.005                  |
| Copper   | 0.28     | 0.50     | 0.35     | 0.62     | <0.002                  |
| Nickel   | 0.76     | 1.7      | 0.91     | 1.1      | <0.01                   |
| Zinc     | 0.056    | 0.064    | 0.042    | 0.078    | <0.002                  |



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AKC-0015063

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Alaskan Copper Works

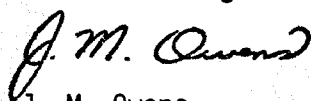
LABORATORY NO. 14378

### Key

< indicates "less than"

Respectfully submitted,

Laucks Testing Laboratories, Inc.



J. M. Owens

JMO:emt



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AKC-0015064

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### APPENDIX

#### Matrix Spike/Matrix Spike Duplicate Report

| Sample | Analyte  | parts per million (mg/L) |               |           |       | mg/L       |       |     |     |        | QC Limits |  |
|--------|----------|--------------------------|---------------|-----------|-------|------------|-------|-----|-----|--------|-----------|--|
|        |          | Spike Added              | Sample Result | MS Result | % Rec | MSD Result | % Rec | RPD | RPD | REC    |           |  |
| 1      | Chromium | 0.10                     | 0.70          | 0.78      | 80.   | 0.84       | 140.  | 54. | *   | *      |           |  |
| 1      | Zinc     | 0.10                     | 0.072         | 0.16      | 88.   | 0.18       | 109.  | 21. | 6   | 64-127 |           |  |
| 1      | Copper   | 0.10                     | 0.30          | 0.41      | 110.  | 0.43       | 130.  | 17. | 7   | 65-122 |           |  |
| 1      | Nickel   | 0.20                     | 0.64          | 0.86      | 111.  | 0.89       | 126.  | 13. | 5   | 66-125 |           |  |

MS = Matrix Spike

MSD = Matrix Spike Duplicate

Rec = Recovery

RPD = Relative Percent Difference

\*Samples are spiked prior to preparation and analysis at a level deemed to be generally appropriate to the average sample processed in the laboratory. In this case, the level of analyte already present in the sample was large enough to make an accurate determination of spike recovery impossible.



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